

PCT/PTO 21 SEP 2006

WHAT IS CLAIMED IS:

1. A corrugated board material that is formed from a cut sheet (100) having an IC-tag tape (30) along its entire length, the corrugated board material being formed by the steps of:

5 selecting a tape reel (1) of an IC-tag tape to which IC tags (20) are attached with such an IC-tag-pitch that each said cut sheet includes at least one IC tag,

unwinding said IC-tag tape from said tape reel that is held by a reel stand and providing said IC-tag tape in the machine direction to attach said
10 IC-tag tape to a successive laminated sheet material, and

cutting said successive laminated sheet material into said cut sheets with a predetermined length in the machine direction,

wherein said cut sheet is comprised of a second linerboard (8), a first linerboard (9) that forms the opposite side of said cut sheet with respect to
15 said second linerboard, and a corrugated medium (10) that is positioned between said second linerboard and said first linerboard,

wherein said IC-tag tape is positioned between said corrugated medium and said second linerboard,

wherein the interface between said IC-tag tape and said second
20 linerboard forms an unconnected area, and

wherein said unconnected area has a width that does not reduce the compressive strength of a box formed from said corrugated board material.

2. The corrugated board material of claim 1, wherein said corrugated medium (10) and said second linerboard (8) are adhesively
25 attached together using starch paste or vinyl acetate emulsion.

3. A corrugated board material that is formed from a cut sheet

(100) having an IC-tag tape (30) along its entire length, the corrugated board material being formed by the steps of:

selecting a tape reel (1) of an IC-tag tape to which IC tags (20) are attached with such an IC-tag-pitch that each said cut sheet includes at least
5 one IC tag,

unwinding said IC-tag tape from said tape reel that is held by a reel stand and providing said IC-tag tape in the machine direction to attach said IC-tag tape to a successive laminated sheet material, and

cutting said successive laminated sheet material into said cut sheets
10 with a predetermined length in the machine direction,

wherein said cut sheet is comprised of a second linerboard (8), a first linerboard (9) that forms the opposite side of said cut sheet with respect to said second linerboard, and a corrugated medium (10) that is positioned between said second linerboard and said first linerboard,

wherein said IC-tag tape is attached to said first linerboard and is
15 configured to be used as a cut tape for said corrugated board material.

4. The corrugated board material of any one of claim 1 to claim
3,

wherein said IC-tag tape (30) is a plastic film tape on which an
20 electronic circuit is printed, and

wherein said electronic circuit is covered with a protecting coat.

5. The corrugated board material of any one of claim 1 to claim
4,

wherein said IC-tag-pitch is ranged from 5 to 100 cm.

6. The corrugated board material of any one of claim 1 to claim
25 5,

wherein said IC-tag tape (30) is 2 to 100 mm in width.

7. The corrugated board material of any one of claim 1 to claim 6,

wherein said IC-tag tape (30) is 4 to 10 mm in width.

5 8. The corrugated board material of any one of claim 1 to claim 7,

wherein said cut sheet is desirably shaped during a die-cutting process after cutting said successive laminated sheet material into said cut sheets.

10 9. The corrugated board material of claim 8,

wherein said successive laminated sheet material passes below an encoder (97) before cutting said successive laminated sheet material into said cut sheets,

wherein said encoder (97) sends signals to a production control device (95), the signals indicating the length of said successive laminated sheet material that has passed below the encoder,

wherein an interrogator (96) with a radio antenna sends location signals to said production control device, the signals indicating the location of said IC tag (20) in said corrugated board material,

20 wherein said production control device (95) calculates whether said IC tags (20) are positioned in an area to be trimmed during said die-cutting process using said signals from said encoder (97) and from said interrogator (96) with a radio antenna.

10. A cut sheet (100) having an IC-tag tape (30) along its entire length, the cut sheet being formed from a successive sheet material by the steps of:

selecting a tape reel (1) of an IC-tag tape to which IC tags (20) are attached with such an IC-tag-pitch that each said cut sheet includes at least one IC tag,

unwinding said IC-tag tape from said tape reel that is held by a reel
5 stand and providing said IC-tag tape in the machine direction to attach said IC-tag tape to a successive sheet material, and

cutting said successive sheet material into said cut sheets with a predetermined length in the machine direction,

wherein said cut sheet includes a plurality of layers, and

10 wherein said IC-tag tape is positioned and attached between said plurality of layers using neither bonding material nor adhesive material.

11. The cut sheet of claim 10,

wherein said plurality of layers consists of wet web,

wherein said IC-tag tape (30) is attached to said cut sheet by
15 inserting the IC-tag tape between said layers of wet web to be made into said successive sheet material before drying said wet web.

12. The cut sheet of claim 10,

wherein said cut sheet (100) is made of a plastic corrugated board,
and

20 wherein said IC tag tape is attached to said cut sheet by putting said IC tag tape on hot-melted part of said plastic corrugated board.

13. The cut sheet of claim 10,

wherein said IC-tag tape is attached between said plurality of layers using starch paste or vinyl acetate emulsion.

25 14. The cut sheet of any one of claim 10 to claim 13,

wherein said IC-tag tape is formed by printing an electronic circuit

on a plastic tape substrate (2),

wherein the electronic circuit is covered with a protecting coat.

15. The cut sheet (100) of any one of claim 10 to claim 14,
wherein said IC-tag-pitch is ranged from 5 to 300 cm.

5 16. The cut sheet (100) of any one of claim 10 to claim 15,
wherein said IC-tag tape is 2 to 100 mm in width.

17. The cut sheet (100) of claim 16,
wherein said IC-tag tape is 2 to 10 mm in width.

18. The cut sheet (100) of any one of claim 10 to claim 17,
10 wherein said cut sheet is desirably shaped during a die-cutting
process cutting after said successive sheet material into said cut sheets.

19. The cut sheet (100) of claim 18,
wherein said successive sheet material passes below an encoder (97)
before the successive sheet material is cut into said cut sheets,

15 wherein said encoder (97) sends signals to a production control
device (95), the signals indicating the length of said successive sheet
material that has passed below the encoder,

wherein an interrogator (96) with a radio antenna sends location
signals to said production control device, the signals indicating the location
20 of said IC tag (20) that is attached to said successive sheet material,

wherein said production control device (95) calculates whether said
IC tags (20) are positioned in an area to be trimmed during said die-cutting
process using said signals from said encoder (97) and from said interrogator
(96) with a radio antenna.

25 20. A packaging bag including a bottom part that is made of said
IC-tag tape (30).